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Energy Services

Electronic Mail & Federal Express

July 27, 2012

Ms. Ingrid H. Hopkins
Water Protection Division (3WP42)
US EPA – Region III
1650 Arch Street
Philadelphia, PA 19103-3029
(215) 814-5437
hopkins.ingrid@epa.gov

RE: Benning Road Generating Station – NPDES Permit No. DC 0000094
Metal Excursion – Outfall 013Q

Dear Ms. Hopkins,

This letter follows up my July 17, 2012, letter regarding daily maximum copper, iron, zinc and lead excursions from a grab storm water sample taken at Outfall 013 on June 29, 2012. As stated in my July 17 letter, we asked AMEC - the consultant that collected the storm water samples -- to conduct a further assessment of the possible reasons for these unusually high metals concentrations. The results of AMEC's assessment are summarized in the attached letter.

The principal explanation for the sampling results, which are substantially higher than observed during any recent prior sampling event, was the unusual intensity of this storm event (which has been characterized as a "derecho" and, as you are no doubt aware, resulted in very significant storm damage in the Washington, DC area). Using site-specific measurements available for manhole K (which is the sampling point for Outfall 101), AMEC calculated that the storm water flow rate during the first 35 minutes was twice as high as the total average flow rate over the entire storm event. The high intensity of this storm event also can be seen from overall flow rate for Outfall 013. The calculated flow rate at Outfall 013 for the June 29 sampling event was (8.77 ft^3/sec) which was more than twice as high as the average calculated flow rate for Outfall 013 for all prior sampling events since the current permit was issued in 2009 (3.87 ft^3/sec). The scouring effect from the unusual intensity of this storm appears to have resulted in higher than normal turbidity, and a correspondingly higher concentration of metals. This is confirmed by the relatively higher Total Suspended Solids (TSS) concentration at Outfall 013 during the June 29 sampling event -- 72 milligrams per liter (mg/L) -- compared to the average TSS concentration from all the prior sampling events under the current permit of 33 mg/l.

The June 29 sampling event was the first time that AMEC collected samples at Outfall 013, and the field personnel observed that the sediment was collecting inside the bailer, possibly as the result of inadvertent contact with sediment at the bottom of the storm drain, which may not have occurred during prior sampling events.

Because the high metals concentrations measured during the June 29 sampling event appear to be attributable principally to the unusual intensity of the storm event that day, we do not believe that these concentrations are representative of normal storm water quality at the site, and we do not expect to see similar results in the future.

Please contact me at (703) 253-1787 or by electronic mail at mwilliams@pepcoenergy.com if you need additional information.

Respectfully yours,

Michael V. Williams
Power Plant Asset Manager
Pepco Energy Services, Inc.

1300 North 17th Street • Suite 1600 • Arlington • VA • 22209 • 703-253-180 • Fax 703-253-1799 • www.pepcoenergy.com

July 27, 2012

Mr. Mike WilliamsPower
Plant Asset Manager
Pepco Energy Services, Inc.
3400 Benning Road NE
Washington, D.C. 20019

Subject: Metals Excursion – Benning Road
AMEC Project No. 6110-10-0001

Dear Mr. Williams:

You have asked AMEC to evaluate possible explanations for the relatively high laboratory results for metals (Copper, Lead, Zinc and Iron) from the storm water sampling event for Outfall 013 on June 29, 2012. We believe that the anomalously high results received from this sampling event may be associated with increased turbidity. Two factors may have contributed to a more turbid sample:

1. The severe nature of the storm event may have scoured up sediment.

Most of the rain fell during the first 35 minutes of the event. AMEC sampled both Manhole K and Outfall 013 just after the intensity declined, due to safety concerns (high winds and frequent lightning). To evaluate the magnitude of the higher storm intensity just prior to sample collection, we compared the flow rate at Manhole K (which is based on site-specific measurements) during the first 35 minutes of the storm to the total average flow rate at Manhole K over the entire duration of the storm event. The attached tables show these flow rate calculations. The discharge rate during the first 35 minutes of the storm was 2.23 cu. Ft/sec as compared to 1.11 cu. Ft/sec for the storm duration. The flow rates at Outfall 013 would be expected to have experienced a similar spike in intensity during the first part of the storm event.

2. This was the first time that AMEC personnel collected storm water samples from Outfall 013. During sampling, the water flow was noticeably pulling the bailer downstream as it was lowered into the storm water. It was also noted that the check ball in the bailer was not seating properly as sampling progressed due to sediment collecting inside the bailer. It is possible that the bailer inadvertently captured more sediment than during past sampling events.

Please feel free to contact us if you have any questions.

Sincerely,

Jennifer Johnson
Staff Engineer II
jennifer.johnson@amec.com

David Bulova
Project Manager/Senior Planner
david.bulova@amec.com

Attachment: Appendix B – Discharge Calculation Form 6-29-12
Appendix B – Discharge Calculation Form 6-29-12 - Revised

Correspondence:
AMEC Environment & Infrastructure, Inc.
14424 Albemarle Point Place Suite 115
Chantilly, VA 20151
USA
Tel +1 (703) 488 3700
Fax +1 (703) 488 3701
amec.com

Appendix B: Discharge Calculation Form

Date: 6/29/2012

Sample Location	Catchment Area (ft^2)	Rain Gauge Measurement (inches)	Time Rain Event Began*	Time Rain Event Ended *	Approximate Storm Event Duration (minutes)	Storm Event Intensity (ft/sec)**	Discharge (ft^3/sec)***	Sampling Notes
SW-1	6204	0.80	22:45	00:05	80	1.39E-05	0.086	Install sampler
SW-2								Cover manhole
SW-3	3853	0.80	22:45	00:05	80	1.39E-05	0.054	Install sampler
SW-4								Cover manhole
Manhole 2	26149	0.80	22:45	00:05	80	1.39E-05	0.363	Install collection tray and sampler
Manhole 3	43975	0.80	22:45	00:05	80	1.39E-05	0.611	Install collection tray and sampler
SW-5								Cover manhole
SW-6								Cover manhole

Total Discharge (ft^3/sec): 1.11

Prepared By: Jennifer Johnson
Checked By: David Bulova

Notes:
ft^2 = square feet
ft/sec = feet per second
ft^3/sec = cubic feet per second
*15-minute precipitation data for Washington DC is available for USGS Gauge 01652500 Fourmile Run at Alexandria, VA
**Storm Event Intensity = (Rain Gauge Volume (in)/Storm Duration(min))/(12 X 60)
***Discharge = (Storm Event Intensity (ft/sec) X Catchment Area (ft^2))

Appendix B: Discharge Calculation Form
Revised**: 7/17/2012**

Date: 6/29/2012

Sample Location	Catchment Area (ft^2)	Rain Gauge Measurement (inches)	Time Rain Event Began*	Time Rain Event Ended *	Approximate Storm Event Duration (minutes)	Storm Event Intensity (ft/sec)**	Discharge (ft^3/sec)***	Sampling Notes
SW-1	6204	0.70	22:45	23:20	35	2.78E-05	0.172	Install sampler
SW-2								Cover manhole
SW-3	3853	0.70	22:45	23:20	35	2.78E-05	0.107	Install sampler
SW-4								Cover manhole
Manhole 2	26149	0.70	22:45	23:20	35	2.78E-05	0.726	Install collection tray and sampler
Manhole 3	43975	0.70	22:45	23:20	35	2.78E-05	1.222	Install collection tray and sampler
SW-5								Cover manhole
SW-6								Cover manhole

Total Discharge (ft^3/sec): 2.23

Prepared By: Jennifer Johnson
Checked By: David Bulova

Notes:
ft^2 = square feet
ft/sec = feet per second
ft^3/sec = cubic feet per second
*15-minute precipitation data for Washington DC is available for USGS Gauge 01652500 Fourmile Run at Alexandria, VA
**Storm Event Intensity = (Rain Gauge Volume (in)/Storm Duration(min))/(12 X 60)
***Discharge = (Storm Event Intensity (ft/sec) X Catchment Area (ft^2))
****Revised to exclude light rain that followed a very intense storm to show significant increase in storm intensity during the first 35 minutes of the storm.